

ABSTRACT

The invention provides an apparatus and method for highly selective and sensitive chemical sensing. Two modes of laser light are transmitted through a waveguide, refracted by a thin film host reagent coating on the waveguide, and analyzed in a phase sensitive detector for changes in effective refractive index. Sensor specificity is based on the particular species selective thin films of host reagents which are attached to the surface of the planar optical waveguide. The thin film of host reagents refracts laser light at different refractive indices according to what species are forming inclusion complexes with the host reagents.

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